

AMENDMENTS TO THE CLAIMS

1. (Currently amended) A thermally curable adhesive composition, ~~consisting essentially of comprising:~~

(A) a compound selected from (i) a thermosetting polymer[[, or]] and (ii) a monomer which is ~~polymerisable~~ polymerizable to yield a thermosetting polymer, wherein the thermosetting polymer (i) and the thermosetting polymer yielded by polymerization of the monomer (ii) ~~where said polymer is~~ are crosslinkable when subject to the action of a chemical crosslinking agent; and

(B) a chemical crosslinking agent for said polymer, ~~the crosslinking agent selected from (i) polyacids, (ii) polyanhydrides, and (iii) hydrazides, wherein the crosslinking agent has having~~ fluxing properties and exhibiting either no reactivity or but insignificant reactivity with the polymer at ambient temperatures and without the action of a catalyst and/or heat, but which crosslinking agent serves to crosslink said polymer in the presence of heat equal to or greater than a melting point of solder, or in the presence of the catalyst, or in the presence of both the heat and the catalyst; and, is a solid at ambient temperature, and is insoluble in the thermally curable adhesive composition until heated to a soldering temperature; and wherein the composition is thermally curable when heated to a soldering temperatures in the presence of a catalyst because the polymer is crosslinked by action of the crosslinking agent.

2. (Canceled)

3. (Canceled)

4. (Currently Amended) The composition according to claim ~~[[3]]~~1, wherein the polyacids is selected from polymers containing two or more carboxyl groups and di- and polycarboxylic acids ~~and di- and polyanhydrides~~.

5. (Currently Amended) ~~[[A]]~~The composition according to claim 4, wherein the polycarboxylic acid is a C₈ or greater dicarboxylic acid.
6. (Currently Amended) ~~[[A]]~~ The composition according to claim ~~[[3]]~~1, wherein the hydrazide is a monohydrazide, dihydrazide or polyfunctional hydrazide.
7. (Currently Amended) ~~[[A]]~~ The composition according to ~~[[any]]~~ claim ~~[[6]]~~1, wherein the crosslinking agent contains a dihydrazide ~~and/or~~, a dicarboxylic acid or a mixture of a dihydrazide and a dicarboxylic acid.
8. (Currently Amended) ~~[[A]]~~ The composition according to claim ~~[[6]]~~7, wherein the crosslinking agent contains adipic dihydrazide ~~and/or~~, dodecanedioic acid or a mixture of adipic dihydrazide and dodecanedioic acid.
9. (Currently Amended) ~~[[A]]~~ The composition according to claim ~~4~~1, wherein the ~~crosslinking agent is a styrene acrylic acid copolymer~~polyanhydride is either polyazelaic anhydride or polyadipic anhydride.
10. (Canceled)
11. (Canceled)
12. (Canceled)
13. (Canceled)
14. (Canceled)
15. (Canceled)

16. (Currently amended) ~~[[A]] The thermally curable adhesive composition consisting essentially of~~

~~—— (a) a thermosetting polymer, or a monomer which is polymerisable to yield a thermosetting polymer, where said polymer is crosslinkable when subject to the action of a chemical crosslinking agent;~~

~~—— (b) a chemical crosslinking agent for said polymer, said crosslinking agent having fluxing properties so as to flux metals to create metal salts that are catalytic for promoting crosslinking of the polymer by the chemical crosslinking agent; and~~

~~—— (c) an composition according to claim 1, further comprising an acid flux which is liquid at temperatures below 100°C that fluxes metals so as to create metallic salt, said metallic salt being non-catalytic for the reaction of (a) and (b) above;~~

~~wherein metals are fluxed by both the acid flux and by the chemical crosslinking agent to produce metal salts, but only metal salts produced by action of the fluxing with the chemical crosslinking agent serve to catalyze the crosslinking of the polymer by the chemical crosslinking agent.~~

17. (Currently amended) ~~[[A]]~~ The composition according to ~~[[any]]~~ claim 16, wherein the acid flux is liquid at temperatures from 20°C to 25°C.

18. (Previously presented) ~~[[A]]~~ The composition according to Claim 16, wherein the acid flux is a monocarboxylic acid, preferably containing at least eight carbon atoms.

19. (Previously presented) ~~[[A]]~~ The composition according to Claim 18, wherein the acid flux is a versatic acid, capric acid, caprylic acid, lauric acid, stearic acid or palmitic acid.

20. (Canceled)

21. (Canceled)

22. (Canceled)

23. (Canceled)

24. (Canceled)

25. (Canceled)

26. (Canceled)

27. (Canceled)

28. (Canceled)

29. (Canceled)

30. (Canceled)

31. (Canceled)

32. (Canceled)

33. (Canceled)

34. (Canceled)

35. (Canceled)

36. (Currently amended) A method of producing an electronic device, the method comprising[[:]]:

opposing an electrical component having a plurality of electrical terminations, each termination including a solder bump, and a component-carrying substrate having a plurality of electrical terminations corresponding to the terminations of the electrical component;

applying a thermally curable adhesive composition to a metal surface ~~at one and/or both~~ on at least one of [[said]]the electrical component and [[said]] the substrate;

bringing the electrical component and the substrate into contact at elevated temperature so as to solder the electrical component to the substrate while simultaneously achieving encapsulation ~~thereof of the electrical component and the substrate in the thermoset polymer produced in situ from monomer or polymer in the adhesive composition, in which method~~ wherein [[(1)]] the thermally curable adhesive composition ~~consists essentially of~~ comprises

————— (a) a thermosetting polymer, ~~or a monomer which is polymerisable to yield a thermosetting polymer, where said polymer is crosslinkable when subject to the action of a chemical crosslinking agent;~~

————— (b) a chemical crosslinking agent for said polymer, ~~the crosslinking agent having fluxing properties and exhibiting either no reactivity or but insignificant reactivity of the polymer at ambient temperature and without the action of a catalyst and/or heat, but which crosslinking agent serves to crosslink said polymer in the presence of heat equal to or greater than a melting point of solder, or in presence of the catalyst, or in presence of both the heat and the catalyst;~~

————— ~~wherein the composition is thermally curable at temperatures above the melting point of the solder bump and in the presence of a catalyst for the crosslinking of the polymer with the crosslinking agent~~ (A) a compound selected from (i) a thermosetting polymer, and (ii) a monomer which is polymerizable to yield a thermosetting polymer, wherein the thermosetting polymer (i) and the thermosetting polymer yielded by polymerization of the monomer (ii) are crosslinkable when subject to the action of a chemical crosslinking agent; and

(B) a chemical crosslinking agent selected from (i) polyacids, (ii) polyanhydrides, and (iii) hydrazides, wherein the crosslinking agent has fluxing properties, is a solid at ambient temperature, and is insoluble in the thermally curable adhesive composition until heated to a soldering temperature; and wherein the composition is thermally curable when heated to a soldering temperatures; and

~~————— (2) catalysis is achieved by metal oxide removed from metal surfaces by reaction between the metal oxide serving as the catalyst and the crosslinking agent.~~

37. (Canceled)

38. (Canceled)

39. (Canceled)

40. (Canceled)

41. (Canceled)

42. (Canceled)

43. (Canceled)

44. (Canceled)

45. (Canceled)